

14

A R C H I T E C T U R E

A T R I C E U N I V E R S I T Y

designates a series of reports on thoughts and investigations from the Department of Architecture of Rice University. It is published in the belief that the education of architects can best be advanced if teachers, students, practitioners and interested laymen share in what they are thinking and doing.

#14

HOUSTON, TEXAS AUGUST 1964

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PREFACE

This report shows the work done by the third-year students of architecture at Rice University for the Chamber of Commerce of Bay City, Texas.

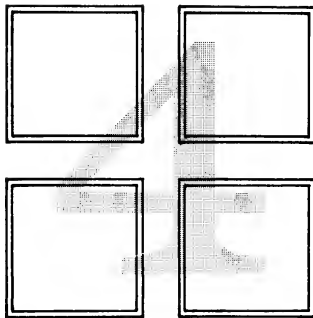
Members of the Bay City Chamber of Commerce proposed a project in which students would assist in formulating plans for the future of their city. They were nearing completion of a comprehensive area survey and felt the need for inspiration in translating the statistics into architectural form.

Rice architectural students receive their introduction to urban design at the third-year level, and this project promised both a thorough orientation to the complex problems of a city with all the practical implications and tangible encouragement from the citizenry to study an existing urban situation. It afforded the students an opportunity to work with real clients, planning consultants, community leaders and the residents. The students did much of their research in Bay City, and they made project presentations intermittently during the progress of the work.

These studies are not intended as master plans but as fresh approaches to prosaic problems. Though often idealistic and seemingly impractical, these ideas have value for Bay City by providing guidelines for formulating plans for the future and a means of evoking public concern and action. The value to the students was the experience afforded by the opportunity to broaden the scope of their architectural knowledge through practical experience in city planning.

WILLIAM T. CANNADY, Assistant Professor of Architecture

B A Y C I T Y



D E S I G N S

INTRODUCTION

Growth is one of the most pressing problems facing many of the cities of America today, as ever-increasing urbanization and a burgeoning population combine to produce an urgent need for urban expansion. Of course, America has often faced this challenge in the past; but in many respects, the current rate of expansion is unprecedented. In addition to mere physical growth, our nation is experiencing an expansion in sociological, economical, and technological complexity that is unparalleled in the history of this nation. Consequently the real problem is not simply one of expanding the limits of our cities, but rather one of expanding the scope of our city planning efforts. This report is the result of just such an effort by a small city of 12,000 individuals, Bay City, Texas. In order to assure themselves that their growth will be orderly and beneficial to the community, the citizens have taken a long look ahead to develop planning procedures today that will assist them in solving the planning problems of the future.

Such farsightedness is important in this era of accelerated living in order to assure that the Bay City of the future will not become stifled by dated planning. Such a condition could take place if chaotic growth patterns are allowed to occur through the continuation of planning efforts that are merely compromises between the needs of contemporary society and an existing city framework created for another era. Therefore, it has become necessary to take a new look at the city from a fresh viewpoint.

This look began with an appraisal of the economic future of Bay City. Originally it was felt that the enhancement of the city square to parallel the forthcoming expansion in industrial productivity was all the planning required. However,

it soon became apparent that this approach was shortsighted and would only temporarily be effective. Subsequently, the scope of the research was enlarged to include the entire city but with special emphasis on the future of the central business district.

The program was divided into three phases:

Phase One: To investigate and define existing and projected future conditions of the city

Phase Two: To analyze this information and determine existing and foreseeable problems in the future of the city

Phase Three: To develop four separate approaches to the solution of these problems with emphasis on the problems of the central business district

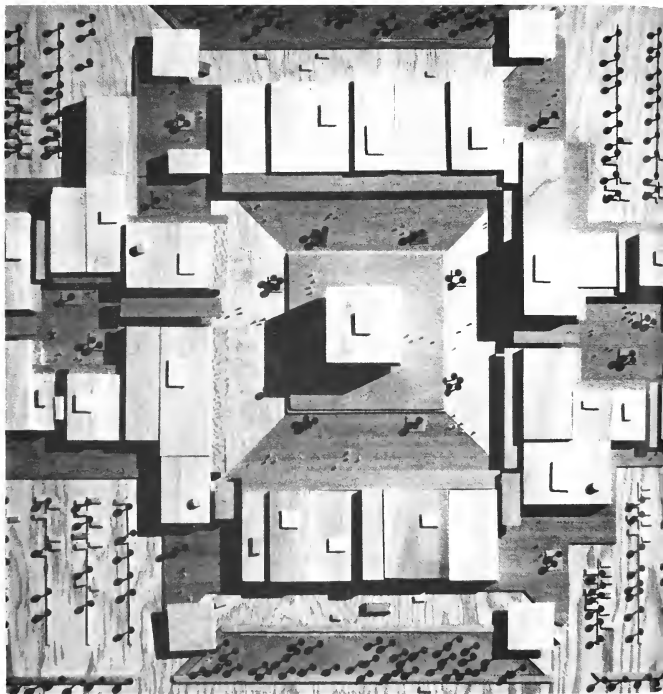
For the purpose of this report, the order of presentation has been reversed from the sequence of the program. The four solutions will be presented first and will be followed by the results of the investigation and the interpretations. The reader is cautioned that these solutions and evaluations are not the answers to the planning problems of Bay City. At best, they are perhaps only a glimpse of what could be some of the answers. The solution to the planning problems of Bay City or any other city will begin only when the citizenry decides to take an active role in shaping the future of their city. The first step in this role is to decide the direction that the city should take to accomplish the goals of the future. It is hoped that this report will assist the citizens of Bay City in taking the first step.

THE LINEAR SATELLITE CITY

The Linear Satellite City portrays the Bay City of the future as one of many remote suburbs to the south of Metropolitan Houston on a commuter transportation belt that extends from Port Arthur to Corpus Christi. The city itself is but a single segment in one of several belts which parallels this rapid transit corridor. A recreation belt extends along the coast. Behind this area and immediately south of the transit corridor is an industrial belt composed of alternating sections of agriculture and manufacture surrounding inland ports. The urban areas, including Bay City, lie just above the transit corridor which separates the populace from industry and allows ready access to the circulation system which will be so vital to the future mobile population.

Robert G. Anderson, Jr.
Donald B. Davis
Stephen B. Haines, Jr.
Dale L. McCleary

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THE ELEVATED LINEAR CITY

This solution advocates a bold proposal to solve one of the most critical problems of the present era: the need to separate vehicular from pedestrian traffic. The proposed elevation of the center of the city above a vast parking area takes the form of an immense plateau that nestles within an enveloping loop of expressways. These expressways feed traffic into and out of the grade-level parking space while pedestrians shop leisurely one story above. Other parts of the city develop in a linear fashion along the major east-west artery with industry developing around the harbor to the southwest. This solution foresees Bay City as one of several nodes strung along the coastal highway system with Houston and Corpus Christi serving as terminals.

Eddy C. Bejar
William T. McGregor
Marcia M. Pieper

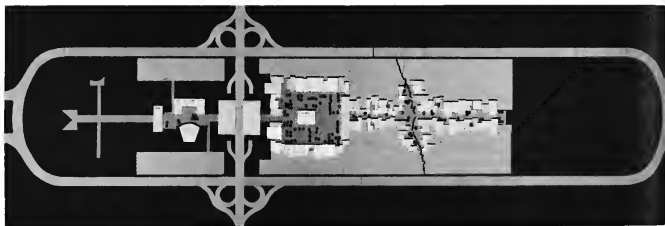
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THE LINEAR CENTRAL CITY

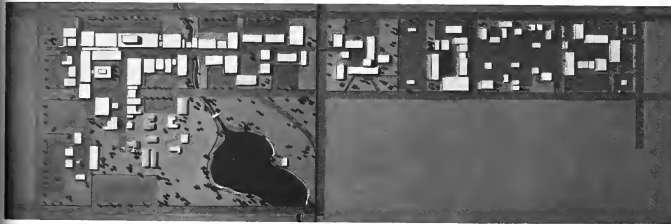
The Linear Central City solves specific difficulties with specific answers. It is a practical solution for the problems of Bay City. The imprint of the existing city is still readily apparent in the solution. One of the more significant answers is the proposed circulation scheme. The cross-roads in the center of the city are not only retained but reinforced as the dominant point in the city. All major traffic converges on this point which lies between the civic center to the west and the shopping district to the east. Residential and industrial areas are developed to the north and south. The highways are thereby allowed to penetrate the city without interfering with local traffic, thus giving travelers the opportunity to take advantage of the shopping district without hindering their passage through the city.

William P. Z. German
D. B. Guthrie II
John Val Thomas

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4 THE CELLULAR CENTRAL CITY



The Cellular Central City is based upon well-defined segments scaled to basic human needs. The concept assumes ideals may be realized if approached on a small scale. These cells are interdependent and interconnected by a circulatory system of thoroughfares which define their limits. The cells differ both in use and character — cells for residential areas, industry, and the central business district. Growth may take place by adding cells to the system. Each such addition is a completely planned unit and is so placed in the overall system as to make the best possible use of the land. Such a planning approach assures the city of unlimited expansion possibilities with few of the problems usually associated with growth.

Paul Lee Prout
William C. Murphy
William Roy Wilson

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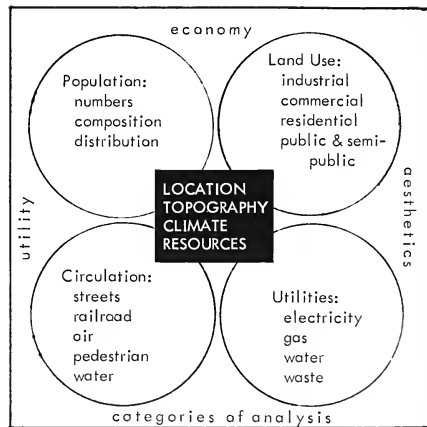
RESEARCH DATA & EVALUATIONS

A City, like a person, has a past which has conditioned its reflexes. It has natural features — geography, topography, climate, resources — which man uses as raw material to create visual reflections of the residents.

The objectives of this comprehensive city planning project were to investigate the origin of cities in general, their development, responses to urban problems, design tools for planning, and the relationships between the urban communities and the environs. In order to accomplish such grandiose intentions, the personality and resources of one city were isolated, investigated, analyzed, revaluated, and reassembled.

The commercial, industrial, and residential factors are the life of the city. Tabulations of the statistics about these functions comprise an abstract of the plan of the city. Presented here is such an abstract; but since the fluctuating functions of a city can create irritations which hinder objective valuations by the persons in the milieu, the accompanying representations of conditions in Bay City and the valuations were prepared by the students in preparation for establishing design concepts for the Bay City of the future.

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RESEARCH AND EVALUATION

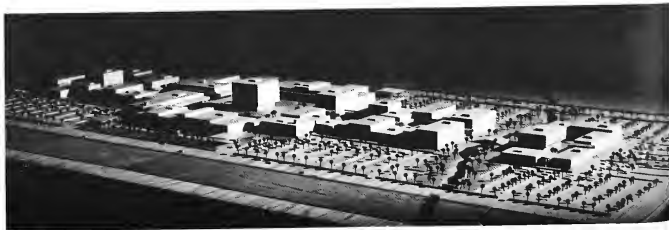
THE LINEAR SATELLITE CITY

THE LINEAR SATELLITE CITY

Access to waterways has been one of the most important factors in the location of cities throughout the history of mankind. In early America, the country experienced a period in which almost all urban development was near a coastline. Today, despite the advancement of transportation systems, the regions along the coasts throughout the country are still preferred for the location of major metropolitan areas. The needs of industry for immense water supplies and access to inexpensive water transportation, coupled with additional recreational areas for expanded population, have enhanced prospects for metropolitan development in the coastal areas.

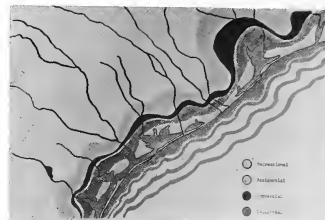
This development is taking place so rapidly today that soon the United States could be rimmed by continuous cities, or megalopoli. This concept of the linear satellite city assumes that such a city, or megalopolis, will develop along the Gulf Coast stretching from Port Arthur to Corpus Christi; and Bay City will form but one link in this band of urban area. This linear development along the coast will have a profound effect on the future of Bay City and will be instrumental in molding a new image of the city. This image will be a linear one with the orientation of the city directed toward the Houston area. Hence, Bay City will become a linear satellite of the Houston metropolitan area.

THE LINEAR SATELLITE CITY



COASTAL CONCEPT

The top figure indicates how the coastal development will appear by the end of this century. Massive urban areas will form along the Gulf Coast in a great band paralleling the undulative shoreline. It will be served by a transportation band of expressways and rapid rail transit immediately to the south. Agriculture and industry will occupy a band adjacent the coast. Beaches reserved for recreational purposes form the recreation band. The location of these bands is not an arbitrary arrangement, but rather a logical projection of current trends. Development within the bands is not expected to be continuous, but each band will be characterized by a particular usage.



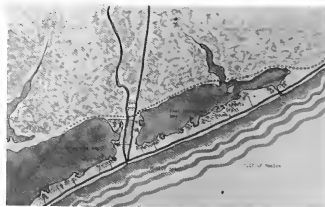
COUNTY CONCEPT

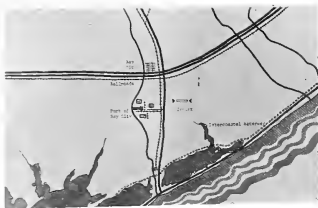
The middle figure shows how belts would appear in the Bay City region. Matagorda Peninsula would become a recreation area. Industry would develop around port facilities off the Colorado River inlet with agriculture and extraction industries forming the rest of the industrial belt. The transportation belt would cut through immediately south of the present Bay City business district with commercial and residential areas to the north. Such an arrangement would provide a logical solution to many Bay City problems: the separation of residential area from noxious industrial regions, the provision for separated industrial-residential vehicular access to the major thoroughfares, and the allowance of spacious recreation areas for the future.



RECREATION BELT

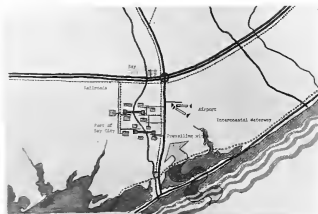
The bottom figure is an enlargement of the recreation area on Matagorda Peninsula which is reached by going south from Bay City on Highway 60. A continuous roadway along the beach would allow access to all the beach area. With the advent of the age of leisure, more and more people will be seeking enjoyable ways to spend their free hours. Consequently, the provision of adequate recreation facilities will become not only a source of increased tourist income, but also a necessity in the lives of future residents of Bay City and Matagorda County. Such an asset is often overlooked, but it is an important consideration that has been developed extensively in this concept.



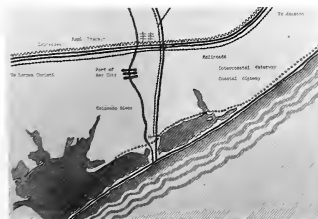


INDUSTRIAL BELT

In the initial phases, the development of the industrial area is confined to the east bank of the Colorado River (top figure), and rail service enters from the north along Highway 60. Later, development occurs along the opposite side of the river as additional channels are opened. Again, highway and rail services are provided from the north. Additional expansion may take place by adding harbors to the system as required. To isolate the industrial plants from other urban development, the adjoining land will continue to function as farmland and oil and gas well sites. (middle)



With the interurban transportation corridor immediately to the north and the Gulf Intracoastal Waterway and Gulf of Mexico to the south, the industrial area is ideally located to receive raw materials for processing at the plants and to deliver finished products rapidly and inexpensively to any area in the United States or in the world. Locating all industry to the southwest of the residential areas assures the city that noxious odors will be carried away by the prevailing southeasterly winds.



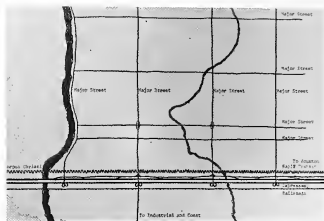
TRANSPORTATION BELT

In the proposed circulation pattern, Highway 35 will be replaced by an interurban transport corridor containing expressway and rail passenger services (bottom). Highway 60 will continue to penetrate the city as the major north-south artery. The existing railway system will be aligned with the linear development, and the airport located in the agricultural area to the south to allow safe flight patterns. Consolidation of major transportation facilities into a single right-of-way will serve many purposes. It will conserve valuable space by avoiding duplication of facilities. It will lessen the required number of major interchanges and overpasses by limiting the number of street and railroad crossings. Most important, perhaps, will be the decrease in travel time for all forms of transportation by the elimination of meandering roadways and traffic interference.

URBAN BELT

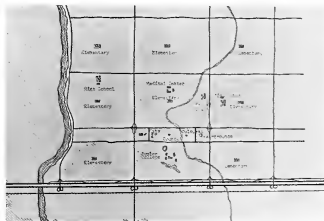
Major Street Plan

Within the city the urban area will be divided into neighborhood units by a rectangular grid formed by major streets (top). These major streets will define the limits of residential and commercial areas and provide controlled access to the transportation corridor. To expedite traffic flow, they will be spread widely apart to decrease the number of major traffic intersections. Such a street configuration dictates linear expansion as no provision is made for diagonal or circumferential traffic flow.



Land Use

In addition to residential and public facilities, the neighborhoods contain local commercial facilities (bottom); however, major commercial concerns are located in the commercial belt previously mentioned. Shops, office buildings, entertainment centers and services are placed in proximity to each other to stimulate business activity. Businesses of an industrial nature are located south of the transportation corridor to avoid interference with other urban activity.



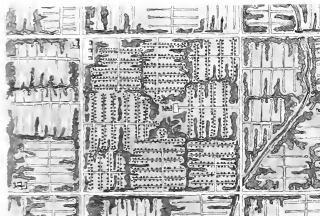
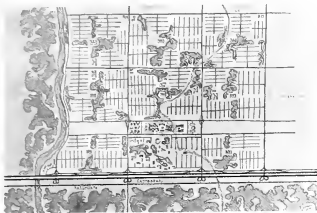
Public Facilities

Each of the residential areas defined by the major street is based upon a population sufficient to support an elementary school (middle). In addition to the school, each such neighborhood contains its own playgrounds and other facilities. Major public facilities such as the courthouse, city hall and library are contained in the commercial belt which penetrates the south half of the city. In every instance these facilities are centrally located with respect to the areas they serve.

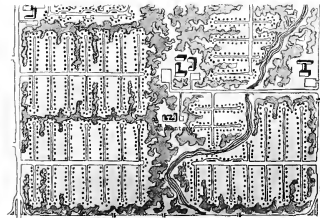
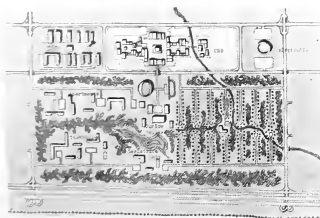


RESIDENTIAL BELT

Overall city development projects a population of 30,000 for 1980. The neighborhoods immediately above and below the commercial belt are redeveloped old neighborhoods (top left). Of these, the one directly below the center of the commercial area is redeveloped as a multi-family dwelling area. The three neighborhoods farthest to the north are projected developments.



The layout characteristic of the new neighborhood developments (left middle) employs cul-de-sac streets about a central school and park site with local commercial sites on the major perimetric streets. Multi-family dwelling neighborhood units are located adjacent the business district and near a community college because of the appeal of this type of dwelling for the student and white-collar worker (lower left).

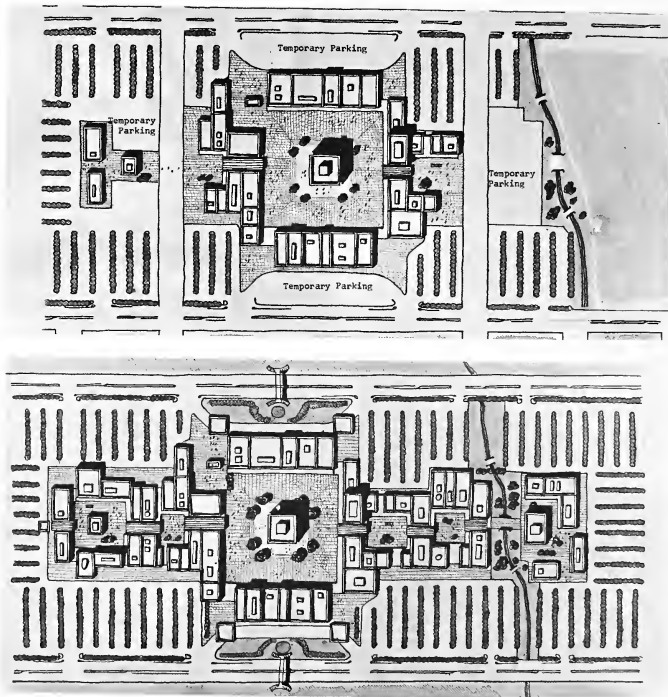


The transition of an existing neighborhood with its small, square blocks into the new neighborhood pattern employing cul-de-sac streets is depicted in the three figures in the right column. This arrangement eliminates the hazardous cross traffic.

COMMERCIAL BELT (Central Business District)

The proposed central business district, which lies in the commercial strip, will develop out from the existing city square. In the first phase, Seventh and Eighth streets will be eliminated — the east-west traffic once carried by Seventh Street having been diverted to Sixth and Ninth streets. The square will then be converted into a pedestrian shopping center surrounding the new courthouse. The downtown area thereby takes on the quality of a contemporary shopping mall with continuous pedestrian access to all offices and shops. The few existing buildings on the perimeter streets can be replaced over a period of time with parking areas which will allow more intensive development of the business district (top).

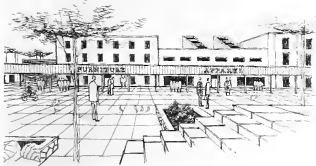
In the second phase, pedestrian shopping and business areas expand to the east and west. New clusters of buildings circle the projected city hall and auditorium which are placed in the business district to promote more business activity and convenience.



CIVIC CENTER



This shopping and civic center concept is scaled to meet the requirements of the 1980 population and incorporates provisions for further expansion to the east and west. The automobile-pedestrian conflict has been resolved by relegating the shopping area entirely to the pedestrian while providing ample parking behind the shops. Thus the new business district will prove highly attractive and accessible to the local residents as well as travelers. This should prove to be a source for increasing community revenue. It also provides for a fine civic center in which to conduct local government.



A view of the new square from overhead (top) shows how the large amount of space once devoted to the automobile would become shopping space and a forum for civic affairs. The existing buildings about the square would be enhanced and unified by projecting a continuous canopy around the square (middle). The character achieved in the new shopping center court attached to the square is illustrated in the lower figure.



THE ELEVATED LINEAR CITY

THE ELEVATED LINEAR CITY

In the rush to build new cities and to provide for the ever-increasing automobile population, the pedestrian has often been overlooked in the formulation of the plans. Indeed, the pedestrian today is usually relegated to a ten-foot sidewalk between austere granite walls and a torrent of onrushing automobiles. Furthermore, those treasured pedestrian retreats of the past, the plaza and the square, have been sacrificed to the traffic island and the turning circle. No longer are there places for humans to meet or to linger leisurely outside the current of humanity pouring down city sidewalks. Nowhere is there a place to rest the feet of weary shoppers. In our present way of life the meeting of friends in the square has been replaced by a harried huddle at the street corner.

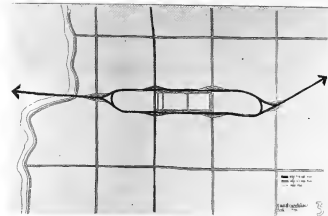
This proposal for the future of Bay City turns the tide back in favor of the pedestrian. To avoid automotive competition, the pedestrian haunts are elevated one story above the streets. With parking and automobile circulation on a below-street level, the pedestrian is spared the hazards of vehicular traffic. The automobile has its unique area, and the pedestrian has an equal, unhampered area, thereby providing an opportunity to create architectural forms of unprecedented continuity and spatial experiences of limitless variety.

THE ELEVATED LINEAR CITY



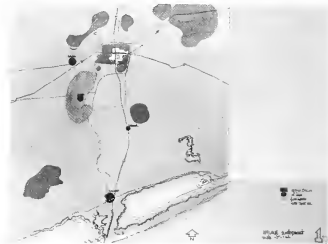
LINEAR DEVELOPMENT

The concept of the Elevated Linear City envisions the Bay City of the future as a small metropolis astride the major east-west artery, Highway 35. In contrast to the linear satellite city, this main artery splits apart and encloses the elevated business district rather than bypassing it. Despite this difference, the form of the city is still linear, and neighborhood superblocks are developed to the north and south between major thoroughfare perpendicular to the highway (top).



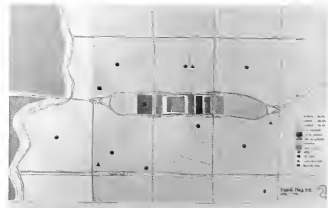
EXISTING DEVELOPMENT MAINTAINED

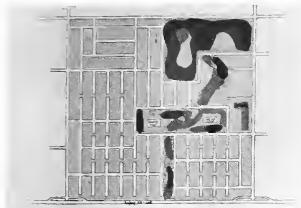
The linear form anticipates the future orientation of Bay City to other communication along the coast, rather than to its immediate environs. Therefore, the concentric development which has characterized Bay City to date will be displaced by a natural linear development. The existing industrial and recreational areas, however, will be maintained and further developed along the same order. Railroads and industries presently within the city will be displaced to the south to provide more pleasant conditions within the residential and commercial areas (middle).



SPECIFIC USE AREAS

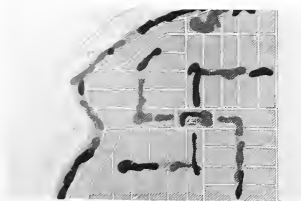
An ordered patchwork of rectilinear spaces will be devoted to specific uses (bottom). Areas within the central business district will be assigned a variety of uses for shops, offices, civic structures and recreation. Larger residential units will lie outside the central business district. Recreation areas, in addition to those in the residential units, will be located in the area of existing large parks west of the river as well as along the coast.

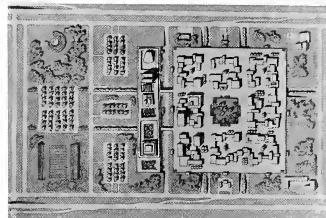




NEIGHBORHOOD DEVELOPMENT

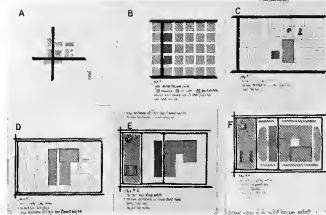
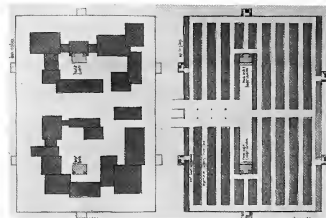
One of the neighborhood units which evolved from an existing area of the city is located along Cottonwood Creek (top). Advantage is taken of its location to develop a continuous parklet on the banks of the creek. An elementary school is located in the middle of the area accessible by vehicles and pedestrians. The neighborhood is created by dividing existing streets into cul-de-sacs. Existing nonresidential facilities are to be gradually replaced. A newly developed area (bottom) demonstrates the same principles. This plan provides continuous local vehicular traffic throughout while discouraging through traffic. Such a plan makes a greater concession to the automobile than do the other residential schemes presented.

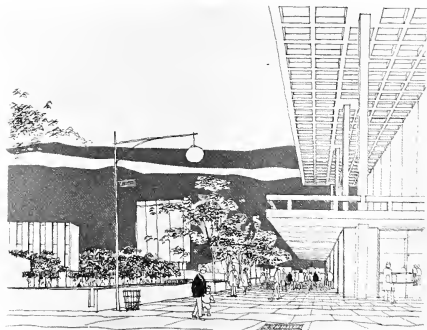
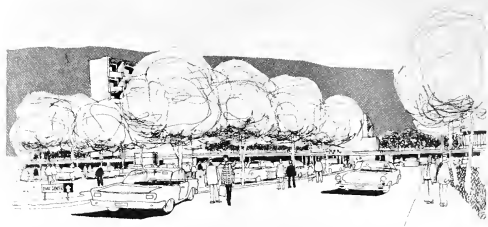




ELEVATED CENTRAL BUSINESS DISTRICT

The feature which differentiates this scheme most emphatically from the satellite city is the central business district treatment. A plan view (top) reveals two elevated platforms: a civic plateau to the west of present Avenue I, and a shopping plateau to the east. A typical plan of the shopping plateau (middle) shows the shops left and parking area right. An illustration (bottom) of the evolution of the two platforms shows in the first diagram the existing square with the two intersecting main highways (A). Next, the proposed disposition of major east-west traffic to Fifth and Tenth streets allows the civic and shopping centers to begin forming (B). The platforms at first cover only a few blocks (C). Additional portions are added (D and E) until the elevated area is completed (F).





The view from Highway 35 (upper left) presents the central business district to passing travelers. The approach to the elevated central district (upper right) reveals both the civic plateau (lower left) and the shopping plateau (lower right) of the elevated city.

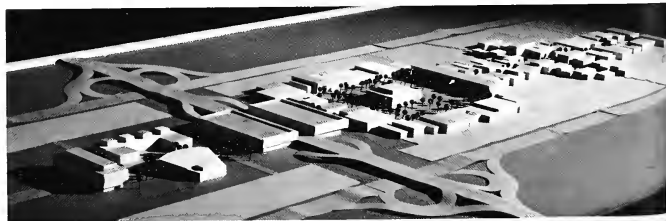
THE LINEAR CENTRAL CITY

THE LINEAR CENTRAL CITY

One of the most critical problems facing planners today in designing cities is providing for parking space for vehicles. In fact, with car ownership increasing, the point has been reached in which parked cars occupy more space than the functions attended by the drivers. With this problem in mind for Bay City, the Linear Central City concept proposes a vertical parking facility that will grow upward as the central business district grows outward.

This multi-story parking garage is located at the intersection of two major thoroughfares in the center of the city. The strong centrality developed by such a dominant structure on the crossroads of the city expresses a duality of form in the otherwise linear city. A duality of development also occurs as the shopping center develops to the east and the civic center to the west of the parking facility. The expansion of these two areas will lie in space formed by the split of the major east-west artery in a manner similar to the elevated city concept previously described. Since the neighborhoods and most of the central business district are divided from the existing development, this concept could be initiated immediately. The creation of similar nodes of urban development along the east-west artery would provide practical and easy expansion.

THE LINEAR CENTRAL CITY



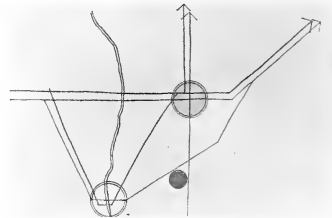
REGIONAL DEVELOPMENT

The regional development adheres closely to existing directions (top). A recreation area will be provided on the coast with agricultural activities and mineral extraction continuing between Bay City and the shoreline. The existing industrial area will be expanded further according to growth requirements.



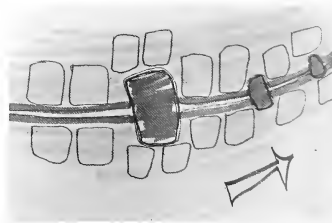
CIRCULATION

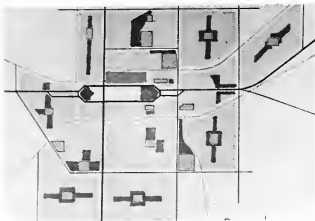
Existing highways will continue to penetrate the city, crossing at the center as indicated. The railroads will be directed around urban areas to serve the industrial area on the southwest. A major street pattern will be developed to create superblock neighborhoods just as in the two prior planning concepts. The patterns, however, will adhere closely to existing street alignments.



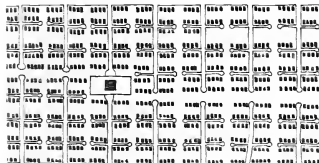
EXPANSION

Future expansion will form similar nodes of urbanization along the east-west artery (bottom). Such a development is different from that of the Linear Satellite City in that the commercial and residential areas will not form continuous bands, but rather a series of concentrations of high density centers.

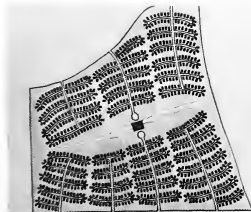




The overall residential pattern will develop from existing conditions (top left). Major thoroughfares which feed the axial arteries will define the neighborhoods by segmenting the city into sections based on a module of one elementary school per unit.

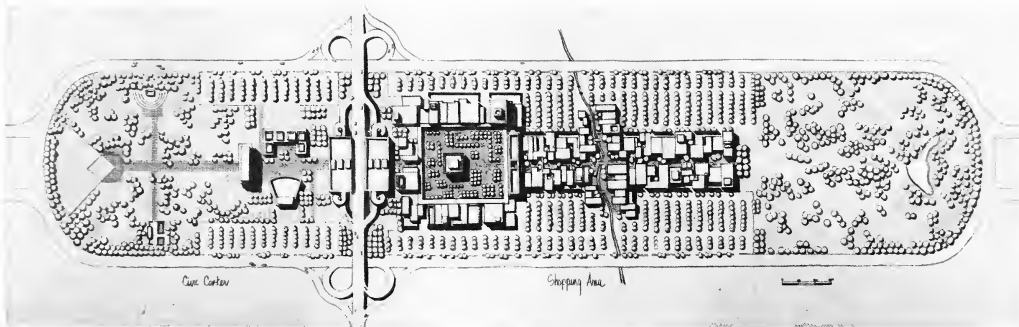


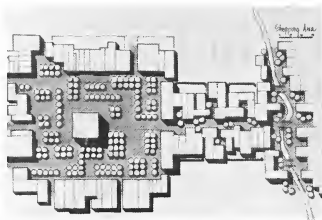
Existing neighborhoods will be transformed by the development of discontinuous streets and common green spaces (left center). Such an arrangement discourages conflicting through traffic and allows school children to reach the neighborhood elementary school safely. Because of the absence of a restrictive existing grid pattern in new neighborhoods, a free form (bottom left) will be developed to employ the same amenities as the other residential units.



The figure to the right and the one on the opposite page show the central business district proposed in this concept. The civic center, parking facility, and the shopping center were described in preceding pages. It should be noted that many of the existing structures, such as the courthouse, various shops and other facilities, are maintained in the new plan.

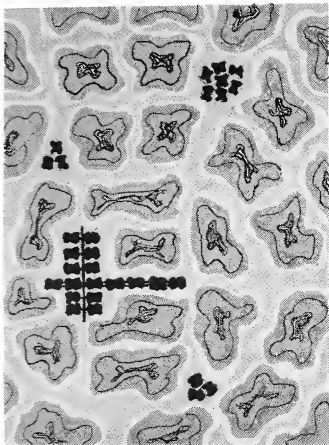






A pedestrian walking through the city square (plan shown center) of the Linear Central City would view some of the office buildings (upper left), the shopping plaza (upper right), the shopping street (lower left), and an apartment group (lower right).

THE CELLULAR CENTRAL CITY



THE CELLULAR CENTRAL CITY

Usually the first question raised when urban redevelopment is proposed is where to begin. The ideal answer is to begin everywhere, but this is hardly possible. Yet, the danger is always present that many sectors of the city may fall assunder while attention is focused on specific areas. The Cellular Central City approach would be both effective and comprehensive. The concept is to divide the city into units, each composed of similar use functions for people with mutual interests. Each such unit, or cell, is defined by major thoroughfares on its perimeter and is developed according to the desires of the electorate living within its boundaries through democratic action.

In such an arrangement, the citizens are responsible for organizing and improving their own neighborhoods under the guidance of a central city planning committee created to organize the many individual efforts and provide necessary information and assistance. Specific goals and redevelopment schedules would be established by each cell. Therefore, rather than a sporadic redevelopment of piecemeal sections of the city, redevelopment takes place uniformly throughout the city and becomes a continuous process rather than a brief, single effort. New developments added to the city would be designed to form homogeneous units of similar nature.

THE CELLULAR CENTRAL CITY



This concept is based on three assumptions:

1. That basically there are two different scales in city planning — that of the automobile and that of the pedestrian. Major circulatory systems must be designed for the automobile to assure efficient use of its greater speed and space requirements. Within the cells, the pedestrian is the primary concern to assure a rewarding life for the inhabitants.
2. That similar use functions within a cell complement and reinforce each other. A commercial sector need not fear introduction of business-destroying noxious elements. Likewise, a residential area should constantly regenerate itself secure in the knowledge that blight will not encroach.
3. That cells need not be identical in size, use, or character, but may suit the specific needs of any given period.



The effect of this method of development is the refinement and extension of the current concentric development of Bay City rather than the imposition of a new form.

THE REGION

Bay City as it is today (top) appears to change little by 1980 (middle), but actually the differences are great. A system of expressway loops have been created about the perimeter to carry unwanted traffic around the city yet allowing easy access to the city from any point. The railroads which now interlace the city are placed outside, paralleling the loop roadways and serving the industrial area to the southwest.



The industrial area around the port is preserved and developed for that specific purpose, and a belt of greenery is reserved along the river to preserve its beauty and usefulness as a recreation area. Expansion after 1980 (bottom) is envisioned as additional residential cells beyond the loop.



THE CITY

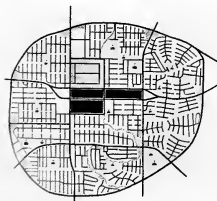
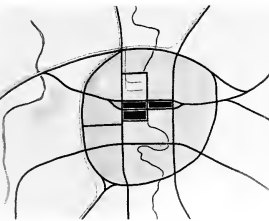
A closer look reveals how this development will take place within the city. Residential areas in Bay City are now wrapped around the commercial and industrial development adjacent to the crossing of highways 60 and 35 (top). The railroads and highways penetrate the city, disrupting circulation and creating disconnected segments of urban area.

By 1980 individual cells of commercial and civic functions, light industry, and residential areas would be defined and segregated by major thoroughfares (middle). Highways 35 and 60 would be altered to move traffic either through or around the city. A loop highway would define the limits of the city and circulate traffic around the city. The railroads would closely parallel the loop and pass around the city rather than through it. A recreation area would be developed near the river to the west and could serve as a new location for the county fair.

Each of the neighborhood cells (bottom) would evolve from existing neighborhood patterns and preserve existing structures. Each cell would be based upon a population sufficient to support an elementary school and have park space adjacent to the school. The facilities would be introverted to discourage through traffic, directing it to the thoroughfares instead. Some of these neighborhood cells, particularly in the western portion of the city, are smaller than the others because of indicated higher densities and multi-family housing.

The cell for light industry to the north of the central business district is accessible by rail and motor transport. Consequently, these existing city-related industries continue to operate within the city but remain relatively isolated from the populace.

The central business district would be developed between the major east-west thoroughfare which has been split to allow free circulation about the district. Access to the business district is available from all directions within or out of the city.

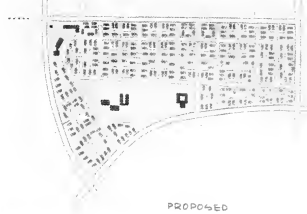
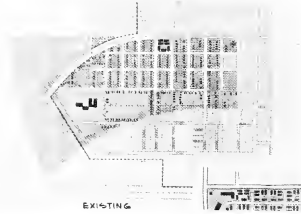


THE RESIDENTIAL CELLS

Plans for three neighborhoods redeveloped according to contemporary standards are shown in the left column. A residential section about Pierce Elementary School (upper left) is characteristic of many Bay City residential areas with wasteful square blocks, little developed park space and commercial blight. This neighborhood (upper right) would be converted to a cul-de-sac arrangement to discourage through traffic and be isolated by major thoroughfares. The result would be pedestrian parkways throughout. A parklet would be developed along the creek and commercial and apartment sites would be confined to the perimeter of the neighborhood.

A neighborhood cell around Roberts Elementary School (left center) is a neighborhood of multi-family housing for low income families (right center). Cul-de-sacs and pedestrian walkways could be combined to make the land more useful and pleasant.

Newly developed neighborhoods would be completed as integrated cells (bottom left, bottom right) and employ the methods outlined above.



THE CENTRAL BUSINESS DISTRICT

The cellular concept would be manifested in the central business district by the various use-function groupings: the civic center, the community college, the amusement district, the office and banking area, the shopping center, the central park and lake, and the visitors' facilities. In addition, wholesale and bulk item marketing areas would be located to the east with the farmer-rancher market. (See insert on proposed grouping on opposite page.)

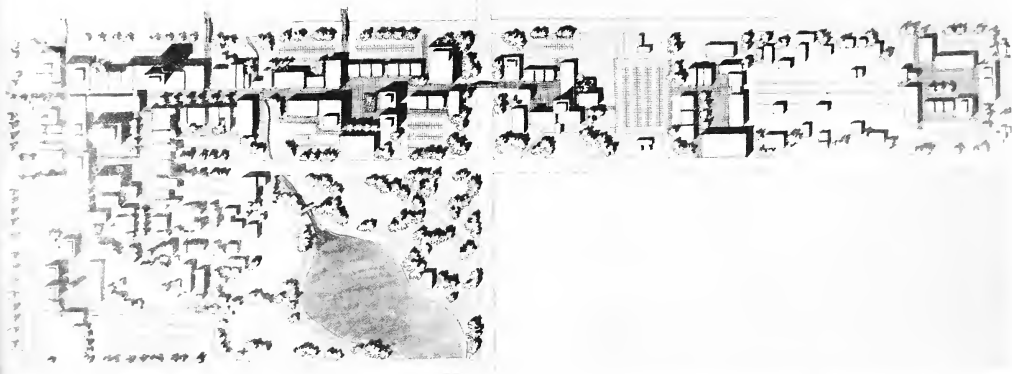
Stores and offices with similar functions would be grouped together to reinforce each other commercially. Together, they would provide an overall selection of goods and services comparable to, or greater than, any other business center in the area. In addition, the proximity of the varied groupings to each other would provide a strong attraction for secondary as well as primary shoppers. For example, bank patrons would be prompted to shop since the shopping center would be close at hand. Others visiting the courthouse might decide to dine at a nearby restaurant before leaving the business district.

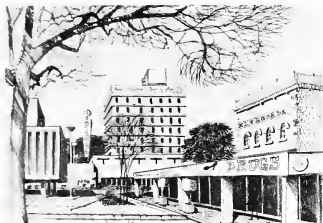
Rather than being inter-competitive, the shops and offices would be complementary. Individual store owners would continue to compete with large dealers and render the personal service that is characteristic of small establishments. Such a possibility, however, presupposes a united effort to capture the market of Bay City. The united plan shown below could be supplemented by a united advertising program and perhaps a credit system. Working together, the Bay City businessmen could have just such a prosperous center.

The portrayed results can be achieved by a controlled evolution of the central business district. The first step is progressively closing Seventh Street to vehicular traffic from Avenue E to Nicholls Avenue thereby diverting east-west traffic to Sixth and Eighth streets and allowing the shops now facing on Seventh Street to face pedestrian malls and plazas instead. Parking would be provided behind the shops and off peripheral streets. The new pedestrian Seventh Street would become a backbone upon which the various use groups could form.

These groups would be determined by location and function of the existing structures which form the base for future development. All existing structures which are substantial would be maintained and utilized, but poorer structures and those not in keeping with the character of the business district would be eventually removed.

The new county courthouse would form the nucleus of the projected civic center and a new city hall, auditorium and library would be located around the revitalized square. The civic center would connect to the community facilities to the south by a continuation of the square across Eighth Street. This one-way street would pass under the square and give access to parking beneath the square and courthouse. Office and business centers would surround the square, and to the east a shopping mall would be extended lined by interrelated shops and stores to the exterior extremity terminated by a tourist and convention center. The characters of these groups are illustrated in the sketches on the following page.





The city square would have a visual continuity created by the extension of the plaza and the colonnade-type store fronts. Accents around the central district would be the larger, multi-story office buildings and the open courts.



The shopping mall to the east would invite the pedestrian to stop and shop rather than return directly to his car after conducting his business.

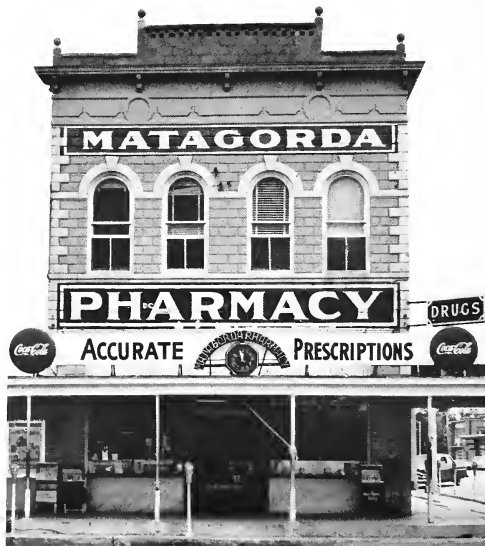
Adjacent to the civic and business centers would be recreation facilities, parks, the community college, and apartment units. Each of these use-groups would be an autonomous city cell in the Cellular Central City.





RESEARCH DATA & EVALUATIONS





LOCATION

Bay City is located in the heart of the Gulf Coast Plain of Texas in the southwestern part of the United States. It is approximately twenty miles from the Gulf of Mexico, midway between Galveston and Corpus Christi, and about 65 miles southwest of Houston. It is the county seat and major city of Matagorda County and is positioned on the intersection of the two major traffic arteries of the county, just east of the Colorado River by 33 miles. Its latitude is $28^{\circ} 58'$ North and its longitude is $95^{\circ} 57'$ West. The elevation of Bay City is 048 feet.

TOPOGRAPHY

The surface is a level plain rising from sea level on the coast to a maximum elevation of 70 feet at the north boundary of the county. The immediate vicinity of Bay City is drained by the Colorado River as well as Cottonwood, Caney, Live Oak, Carancahua, and Tres-Palacios creeks. The stream valleys are of alluvial soil and have heavy growths of hardwood timber, but the remainder of the county is in the Beaumont clay formation and is treeless, flat prairie with residual loam and sandy loam topsoils overlying the clay. Swampland is characteristic along the coast and floodtide has penetrated well into the interior during tropical disturbances.

CLIMATE

The climate is predominantly semitropical. Prevailing winds are from the south and southeast except during December when frequent "northers" result in prevailing winds from the north. Daytime high temperatures in the low nineties occur in the summer. Winter lows average 45° to 47° . The average annual rainfall is 43.43 inches and is distributed evenly throughout the year. Dry spells are rare and humidity is constantly high — 70 per cent. Occasionally, tropical disturbances occur during the summer and fall bringing heavy rain and high winds. The growing season is approximately 285 days per year.

The location of Bay City has much to do with its coming emergence as a port facility and manufacturing center. Its proximity to Houston and the Gulf of Mexico will soon combine to elevate the Bay City region from being merely a source of agricultural and petroleum raw materials to a source of finished products.

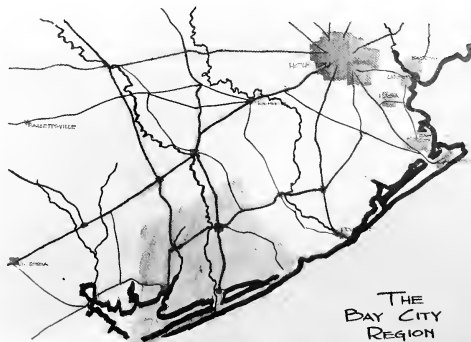
The undeviating plain facilitates ranching and farming around Bay City but leaves much to be desired in the way of scenery. Because of this, an opportunity exists to create an architectural character in the city that contrasts strikingly with the unchanging form of nature. In many areas the level land makes drainage a major problem, and it must be considered in future expansion.

A strong consideration in future development is climate, as often high humidity and temperature combine to produce uncomfortable weather. Temperature and sun controls should be major concerns in architectural design. Much can be done to ease climatic inconveniences by conditioning mechanically and by utilizing natural means such as orientation and vegetation.

RESOURCES

For a long time, Matagorda County has depended upon petroleum and agriculture for its major sources of income. However, both of these commodities have reached production ceilings barring further expansion. If Bay City and the county are going to continue to grow, other resources must be exploited. The most promising is water, one of the greatest needs of industry — for both inexpensive transport and manufacturing processes. The county has a great supply of raw water and ample space for port facilities on the Colorado River.

The greatest resources of the Bay City region are oil and gas, farmland, and water supply. The oil and gas industry is the prime contributor to the economy and paid 70 per cent of the taxes in the county in 1962. Natural gas reserves in the county as of 1 January 1955 were 90,500,000 barrels. Both oil and gas production are increasing yearly. Agriculture is still a dominant resource although it represents a decreasing percentage of the overall economic picture. Far greater production capacity is available if the market demands it. Major products are rice, cattle, and cotton. Studies indicate that between 200 and 300 million gallons of raw, untreated water per day can be made available from the Colorado River alone. This is in addition to 140,000,000 gallons of potable ground water available daily. Other resources of importance are oysters and salt and also extensive beaches which can be developed into recreation areas.



POPULATION

<u>Statistics for Bay City</u>	<u>1960</u>	<u>1980</u>
Number of individuals	11,656	29-30,000
Rate of growth per annum	2.5%	5%
Average number per household	3.27	3.80
Number of families	3,621	7,900

Statistics for Matagorda County

Number of individuals	25,744	75,000
Rate of growth per annum	2.9%	6.2%
Average number per household	3.47	4.20
Number of families	7,440	17,860

Composition (1960)

	<u>Bay City</u>	<u>Matagorda</u>
Place of birth		
Native born	11,482	25,359
Foreign born	174	385
Racial derivation		
Caucasian	8,977	20,417
Negroid	2,677	5,323
Indian	2	4
Age groups		
Under 14	4,062	9,074
15-19	855	2,064
20-44	3,632	8,535
45-64	2,221	4,895
Over 65	886	2,176
Educational level		
Less than high school	2,362	6,041
High school graduate	1,338	2,412
College graduate	448	782
Median school years completed	10.6	9.1

Perhaps the greatest problem associated with the population is the current tendency for the educated young people to leave Bay City to seek employment where there is more opportunity. This problem will be lessened greatly when industry expands and more jobs are available. At that time, the problems will become those of a rapidly expanding population. Homes, schools, and recreational facilities will have to be provided to keep living conditions favorable.

Another pressing problem is the provision of decent living conditions for the lower income groups. Perhaps low-cost row housing or apartments could be built to replace the slums in the northwestern and southwestern parts of the city. One other consideration when growth takes place is the scale of development. While cities may grow ever larger, people as individuals remain basically the same and have certain basic needs. Travel distances, sizes of neighborhoods, schools, parks, and other private and public man-scaled facilities should reflect the constancy of the human determinant in design.

Planning for the future of Bay City must consider the problems of a compounding rate of population increase.

SOCIAL CHARACTERISTICS

The lower income groups contain a disproportionately large number of Negroes and Latins. If the conditions of the neighborhoods are to be improved, the city must seek means of increasing the individual income of the residents. Only through increased spending power can a man in this group afford decent housing for his family short of having it provided by the government.

Bay City is a mixture of cultures: southern and southwestern, Anglo-Saxon, Negroid, Mexican, and others. Despite this heterogeneity, there is little social disorganization. Primarily this is due to the overwhelming dominance of the Anglo-Saxon culture. Social control is rigidly maintained by tradition and law, and individuals conform well to established norms and customs. A loose stratification exists based primarily upon degree of wealth and community status. Racial origin is a strong factor in the determination of social status. There is little social mobility at present, although the immigration of new industry may bring about a change in this situation.

DISTRIBUTION

When Bay City was founded in 1900, the city was conceived as a unit developing evenly on all sides about the center of the city. However, since that time, the city has been developing in a linear fashion to the east along Highway 35. Instead of the perfect square with a business section in the center, the city is developing in a line with the highway as a spine.

Although Bay City began as a perfect square mile, its present configuration is anything but symmetrical. Highways 60 and 35, which once virtually bisected the city perpendicularly, are now well to the west and north respectively of the physical center of the city (see diagram below). Much of the growth of the city has been to the east while population density has increased in the southwest among the lower income groups. At present, this trend is continuing as new additions to the city are taking place in the eastern part and density is increasing in the western part. The distribution is thus being concentrated in pockets of residential or commercial areas.

NW	NE	Population Distribution	
SW	SE	NW	1600
		SW	3400
		NE	3000
		SE	3800

LAND USE — GENERAL

The nature and location of land usage in a city is an important factor in determining living conditions and possibilities for future growth. Yet too little attention is devoted to the planned location of various uses in order to best serve the citizens' interests. Indeed, Bay City, just as so many other American cities, was laid out as an undeviating grid of blocks which could be used for any purpose whatever. Consequently, today a patchwork of unharmonious functions exists side by side throughout the city. The surveyor who laid out the original square mile can be forgiven for his lack of foresight, because he could not be expected to glean future requirements for Bay City from the endless prairie. The perpetrators of today cannot be forgiven for continuing land use policies that lead to a disorganized and unsightly city.

In Bay City today, residential, commercial, and industrial section borders are indistinguishable as one use-area blends into another and causes a mutual disruption of function. Industrial traffic uses neighborhood streets, and railroad tracks crisscross the city, interrupting street traffic and creating safety hazards for playing children. With a slight degree of control, such conditions could be rectified by establishing an orderly and well-arranged city. Instead of unifying and defining areas of the city, the every-street-is-a-through-street idea dissects and carries each faction of urban function to every other area — industry on residential streets, commerce in manufacturing areas.



Most proposals for creating orderly growth today take the form of some method of zoning. Under such a system, those areas of the city best suited for specific uses are restricted to that type of use alone. Such measures as this, however, are only passive attempts to create better cities and often fail to bring about the intended results or lasting benefits.

Bay City will need some form of zoning to create order, but this control must be administered with imagination and created with the flexibility required to meet the changing conditions of changing times. A system of zoning as rigid as the existing grid would ultimately bring on its own type of urban retardation.

LAND USE — INDUSTRIAL

One assurance that Bay City has is that industrial growth must take place sooner or later. Because of its proximity to the Houston area, Bay City could rapidly become a byproduct production center for the petroleum industry. When this expansion takes place, however, care should be taken to maintain a separation of noxious heavy industries from the city proper. Perhaps provision could be made now also to keep heavy industrial traffic, both automotive and rail, routed around the city rather than through it as is now the case.

Light industries as they exist now in the city often conflict with residential and commercial areas. Perhaps these industries and services could be gradually consolidated in areas specifically for industrial type uses.

Almost all industry within the city is what could be classified as light industry. This amounts to about 5.29 per cent of the developed area and is scattered throughout the city. Most of it is located immediately north of the present central business district and consists of grain mills, building material yards, and farm and oil field implement supplies.

Other industrial functions are located to the south and east of the business district and all are served by railroads. None of these industries are of a manufacturing type and consequently employ relatively few employees. Almost all Bay City industry is related to a traditional role as a source of raw crude oil and farming products. At one time these areas were on the perimeter of the city, but now residential areas have overtaken and enveloped some of the industrial sites.

The only significant heavy industry in the Bay City area presently is located on the new port facility on the Colorado River. The new Celanese Corporation plant is located on a 1000-acre tract in this area. It is anticipated that additional plants in the petro-chemical line will soon bolster the amount of land committed to heavy industry. This heavy industrial area is well situated both with respect to the location of the intercoastal land and the location of the city proper.



MANUFACTURING GROUPS

The following are twenty manufacturing plant groups and their prospects in Bay City and Matagorda County:

Food and kindred products (dependent on growth)	Fair
Tobacco mill products	Poor
Textile mill products	Poor
Apparel and related products	Poor
Lumber and wood products industry	Poor
Furniture and fixtures	Fair
Pulp, paper, and paper products	Poor
Printing and publishing (dependent on growth)	Fair
Chemicals and chemical products	Excellent
Petroleum products	Excellent
Rubber products	Good
Leather and leather goods	Poor
Stone, clay, and glass products (dependent on growth)	Fair
Primary metal industry (aluminum and magnesium)	Good
Fabricated metal products	Good
Electrical machinery	Fair
Machinery	Fair
Transportation equipment	Good
Instruments and related products	Fair
Miscellaneous products (plastics)	Excellent

MAJOR FACTORS

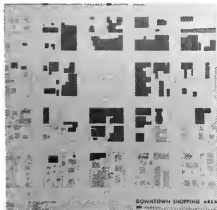
The following fourteen factors are considered the most important by industries seeking locations for new plants. The percentage figures indicate the relative importance of the various factors. Bay City satisfies each factor to a high degree.

<u>Factor</u>	<u>Desirability</u>	<u>Availability</u>
Markets (18.9%)		Excellent
Labor (14.5%)		Available
Raw material (12.3%)		Available
Transportation (7.7%)		Excellent
Building (7.5%)		Available
Distribution (7.0%)		Available
Site (6.7%)		Excellent
Living Conditions (6.2%)		Good
Climate (3%)		Excellent
Industrial fuel (3.4%)		Excellent
Water (2.2%)		Excellent
Financial assistance (2.2%)		Excellent
Taxes (2.1%)		Excellent
Industrial power (1.9%)		Good

LAND USE — COMMERCIAL

If Bay City is to maintain control of its own commercial market, many steps must be taken to resolve current problems:

1. Spotty commercial development is inefficient and unattractive. Consolidated commercial centers could be more profitable from mutual reinforcement and made more attractive by more harmonious architecture.
2. Ample parking should be provided near centers to make shopping more convenient. Consolidated centers would facilitate one-stop shopping.
3. The comfort of pedestrian shoppers should be a major planning consideration to make shopping in Bay City enjoyable so buyers will return.



Current merchandising procedures in Bay City are primarily methods employed by countless generations in rural communities — a small, captive market based on long associations. Bay City merchants today are threatened by the growing competition from an expanding Houston market and the possibility that more enterprising merchants will locate nearby to capture Bay City's own growing market. That this market will indeed grow is verified by forecasts made by the National Planning Association which state that for the next forty years the Southwest, with Houston as its center, will record the most rapid growth rate in the United States. So, in addition to the economic activity generated by its own industries, Bay City will profit from this general area expansion as well.

The shopping facilities in Bay City consist mainly of a few shops about the square (see drawing). For the most part, these shops stock only limited inventories and have a modest amount of display space. The larger selections and the lower prices already lure many would-be shoppers to the Houston shopping centers.

Other businesses in Bay City are located to the east of the central business district. Some commercial establishments are scattered throughout the residential areas. Most of these are small, neighborhood-oriented shops and stores.



Commercial land use was compared with that of other cities:

<u>16 Texas Cities</u>	<u>28 U.S. Cities</u>	<u>Bay City Developed</u>	<u>Bay City Undeveloped</u>
3.83%	3.14%	3.73%	2.82%

Rates of expansion of the Bay City market were projected to 1980:*

1. Food	221%
2. Automobiles	263%
3. Furniture	377%
4. Drugs	220%
5. Gasoline	221%
6. Lumber	219%
7. General Merchandise	235%
8. Apparel	401%

* Based on conservative calculations compiled by students.

The three contemporary problems cited on the previous page and the posed solutions could be instigated in Bay City if the Bay City merchants would act together to obtain an improved shopping district. If some action is not initiated, the present district could wither away in the same way many old business districts in other communities have in the past. If the merchants act now, they can reap the rewards of the coming growth in the Matagorda County area. The rates of expansion of the Bay City markets are directly related to solution of the above problems.



LAND USE — RESIDENTIAL

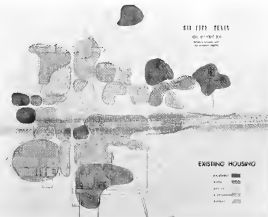
The residential areas present more difficulties than merely planning for growth:

1. Segmented growth patterns
2. Blight in some areas
3. Penetration of neighborhoods by major thoroughfares
4. Lack of uniform neighborhood character
5. Indefinite neighborhood boundaries
6. Pedestrian and vehicular traffic conflicts
7. Unattractive vacant lots
8. Need for strategically located parklets
9. Need for more general neighborhood beautification and landscaping

At present Bay City is experiencing a shortage in apartment units and housing in general. By 1980 the city will have to provide for an additional 18,000 persons. In order to accomplish this, an additional 2000 acres of residential area will have to be developed if present low densities are to be maintained. This amount of expansion could be accommodated in a one-half mile strip around the present city limits.

The following shows a comparison of existing housing in Bay City with other cities:

Type Unit	16 Texas Cities	28 U.S. Cities	Bay City Developed	Bay City Undeveloped
Single family	36.08%	34.08%	40.81%	30.90%
Two family	.58	3.75	1.15	.87
Multi-family	<u>.77</u>	<u>1.73</u>	<u>1.01</u>	<u>.77</u>
Total per cent for housing	37.43%	39.56%	42.97%	32.54%



The number of acres per one hundred persons in housing units was compiled:

Type Housing Unit	Bay City	28 U.S. Cities
Single family	5.39	3.40
Two family	.15	.37
Multi-family	.39	.17
Total number of acres per 100 persons in Units	5.93	3.94
	Texas	U.S.

General Increase in Housing per Decade:	31%	26%
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Many factors affected the direction of growth in Bay City:

The natural barrier provided by the Colorado River to the west

The unwillingness of some property owners to allow their property to be developed

The relative difficulties encountered in installing utilities

The large areas of blighted neighborhoods to the northwest and southwest

The location of most of the school facilities to the northeast

Many of the problems listed for residential areas are not confined to Bay City. These difficulties are common to many old and new neighborhoods throughout the United States. Most arise from legalities of ownership; some develop because it is easier to layout and describe rectilinear streets and lots which create repetitive and monotonous square blocks.

Establishing parklets creates problems of ownership, maintenance, police protection. Consequently, residents do without. Poor planning causes most problems, and a little more effort in the design stage could make residential neighborhoods much more enjoyable and safer places in which to live.



LAND USE — PUBLIC AND SEMI-PUBLIC

While the size and extent of the physical plants of government and education in Bay City are impressive, much is to be desired in their placement and their relationship to the city as a whole.

The city structures, though contemporary and sound design, are seemingly placed at random in the business district.

The schools, which are clustered together predominantly in the northeast, are not related to the population they serve. The parks, though abundant acreage, are not evenly distributed and are rather remotely located with respect to some residential areas.

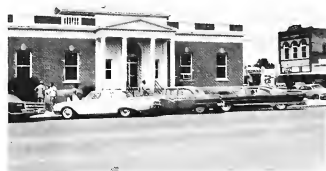
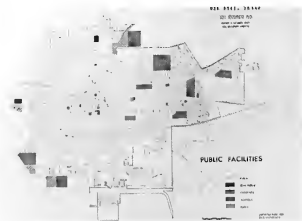
Many recent additions to public facilities in Bay City have started the city well on its way toward providing adequately for the foreseeable future; however, much remains to be done in many areas.

Use of public and semi-public land was compared with other U.S. cities:

Bay City — Total existing acres in public use	257%
Percentage of total city area	8%
Percentage of total developed area	6%
16 Texas cities — Percentage of total developed area	9.09%
28 U.S. cities — Percentage of total developed area	13.25%

Projected public and semi-public land use was compiled for 1980:

Bay City — Total projected acres	660
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PUBLIC FACILITIES

The County Courthouse:

Courthouse under construction in city square is planned for flexibility for future needs.

The City Hall:

The new city hall under contract will be large enough to handle future needs.

The Library:

The new library completed in 1960 presently contains about 8,000 volumes.

The Police Department:

At present there are 13 members and three patrol cars on duty.

The Fire Department:

Two full-time employees, 50 volunteers, five fire trucks and one emergency truck.

Other Facilities:

High school facilities must double as a city auditorium.

A civic center containing all governmental structures would have created an impressive civic center, but strong architectural statement has been lessened and convenience lost by random siting of civic facilities in the business district.

Another bad result of disunity of the civic buildings is the loss of a strong generator to bring shoppers into the business district. By widely separating the two major structures, the City Hall and the Courthouse, the activity throughout is decreased for the stores. In addition, another possible center of development is created which could compete with the existing sparse development.



The placement of the school sites bears little relationship to the neighborhoods which they serve. The commuting problems for elementary school children are definite hazards. This imbalance could be rectified by further residential development in the northeast.

The amount of acreage allocated for parks and playgrounds indicates an ample supply, but the parks are not located to serve the city in a uniform manner. If many smaller parklets could be created, the populace would be able to take better advantage of the recreational facilities. A projection of needed facilities for the year 1980 shows that the amount of park and recreational space should almost be tripled.

Schools:

Currently there are seven schools in the public school system, and the student-teacher ratio is 20 to 1. There are 1,783 students and 198 teachers. Private schools in the city handle an additional 353 students. A number of the schools are new with the latest facilities for learning.

Parks and Playgrounds:

Existing acreage in 1960	130 acres
Projected acreage needed in 1980	300 acres

Other Public Facilities:

Other existing facilities consist of a county hospital in the northern section of the city and a county fair grounds to the east of the city. Both are high quality facilities.

Churches:

Bay City is a city of many fine churches, and a large majority of the population actively participates. Every major denomination is represented, and no one church is predominant.



CIRCULATION — COMMUNICATION

Five major forms of transportation serve the Bay City area: automotive, rail, air, underground pipeline, and water transport. Services provided by each of these are now under study to bring them more up to date.

Automotive Transportation and Street Systems:

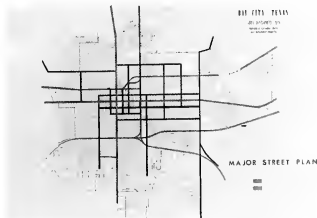
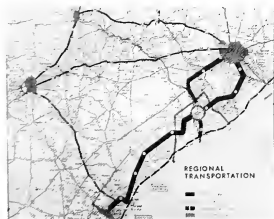
State Highway 35 connects Bay City with Houston to the east and Corpus Christi to the west. State Highway 60 is the Gulf Coast link with central Texas. A network of farm-to-market roads serves all of Matagorda County.

Highways 35 and 60 are the backbones of the grid circulation system within the city as they serve both through traffic and crosstown traffic. The few other major thoroughfares are used almost exclusively for crosstown transportation. Minor streets are almost all continuous through streets adhering to the original grid pattern. New additions to the city are often random curvilinear patterns.

Motor freight and bus transportation is available to all destinations.

Of the five major forms of transportation serving Bay City, the street and rail systems are the most in need of revision. A number of street problems have reached the critical point:

1. Through traffic, both heavy east-west flow of travelers and industrial vehicles from the south, is directed through the heart of the city, creating congestion and parking problems.
2. Crosstown traffic must travel on undersized streets and through residential neighborhoods and thus compounds the congestion and the traffic hazards.



The amount of parking space available is inadequate for present needs. This scarcity is aggravated by the difficulty encountered in entering and leaving parking spaces.

Pedestrian traffic is relegated only the narrow sidewalks. It is in constant conflict with automotive traffic at the street crossings.

The railroads are perhaps the most perilous hazard to safety. They almost encircle the business section and interrupt traffic flow at numerous intersections. The tracks also pass through residential neighborhoods and few safeguards exist to protect the unwary pedestrian or driver. These problems exist in addition to the ungainly traffic congestion.

Parking Facilities:

Existing metered spaces	614
Existing unmetered spaces and parking lots	228
Existing employee spaces	136
Total number of existing spaces	978

Existing parking space deficit	577
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Projected number of parking spaces required by 1980	3,960
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Railroads:

Bay City is served by trunk lines of three of the major rail systems. When the railroads first went through the city, they were located on the perimeter, but now they penetrate the expanded center of town. The three stations serve passenger and freight requirements to all destinations.

Air Transportation:

A small municipal airstrip for light aircraft will be augmented by a new municipal airport capable of handling commercial flights by 1965.



Underground Pipelines:

Bay City and Matagorda County have pipeline connections to the major industrial areas along the Gulf Coast.

Waterways:

Matagorda County is located on the Gulf Intracoastal Waterway which extends from Florida to Texas. Access to other inland systems occurs along the route. Bay City has just finished development of a barge port southwest of the city on the Colorado River. Present planning estimates indicate that this port may become a deep-water port by 1980.

Utilities:

Bay City is unique in that it operates its own natural gas supply systems as well as those for water supply and waste disposal. Sewage disposal represents a major problem because of the limited change in topography. The electricity supplied by a private firm is virtually unlimited, and it may be subsidized by resources of nearby electrical systems as well as its own. Bay City has a radio station and neighboring television stations are received clearly in the area. Telephone and telegraphic services are available as required.

Pipelines and waterways are two most important transportation links. Both have served in the past to export raw material resources of food stuffs and oil from Matagorda County. In the future, they may transport the produce of the new industries in Bay City.

Bay City has utilities in ample supply. There should not be a problem of providing sufficient water, gas, and electricity in the future. From an aesthetic standpoint, however, much could be done to eliminate the obtrusive storage tanks and network of utility wires. There is really no reason to have myriads of wires dangling from creosoted poles in the middle of the central business district downtown.



CONCLUSION

In recent years, urban renewal legislation by state and Federal governments has promoted a rash of comprehensive plans which have been undertaken by many communities. For most cities, however, these plans ultimately serve only as community balance sheets of statistical information rather than as the basis of a progressive beginning for a new era. The plans and the cities often gather dust together as life continues in the old familiar patterns.

Soon, however, many of these cities may no longer enjoy the blessing of tranquility and order without planning. Some, seeking industry and growth, will be passed by in favor of more progressive communities. Others, attempting to maintain the status quo, will find their population burgeoning and problems magnified by proximity to a blooming metropolitan area. A belated search through an old comprehensive plan for answers will reveal only words that say little and figures that mean nothing.

For a comprehensive plan is, at best, only a tabulation of the content of the city. It is a vague picture of the city today without even the faintest image of the city of tomorrow.

If the city is to be a better one tomorrow, then it must go a step further than tabulating the balance sheet. It must seek a direction. Lewis Mumford, the acclaimed historian of cities, once said that what is missing is an "idea of the city." The intent of this report is to take that next step and provide a direction, an idea of the city, to which end the citizens can direct their planning and actions.

This final section of the report dealt with the beginnings of that idea which found its roots in the problems of the city. The design concepts outlined in the first portions of the report were options to be considered by residents and planning officials of the Chamber of Commerce of Bay City. An attempt was made to go beyond mere facts and figures in the analysis. Often statistics are but little better indicators of the health and disposition of a city than are medical test results for a human being. While a city may have everything in ample amounts, the main consideration is always how these things are put together. The blood pressure of the city may be fine, but the city may also have a gloomy disposition.

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